

CLAIMS

What is claimed is:

1. A heat-developable image-recording material comprising on a support:

a silver-supplying layer containing an organic silver salt, a reducing agent, an organic binder and substantially no photosensitive silver halide; and

a separate photosensitive layer containing a photosensitive silver halide;

the heat-developable image-recording material further containing an electron-transfer agent.

2. The heat-developable image-recording material according to

Claim 1 wherein the organic binder is formed from a polymer latex dispersed in an aqueous medium.

3. The heat-developable image-recording material according to

Claim 2, wherein the reducing agent has been incorporated in the form of microparticles dispersed as a solid in an aqueous medium.

4. The heat-developable image-recording material according to

Claim 2, wherein the silver-supplying layer contains a halogen precursor.

5. The heat-developable image-recording material according to

Claim 3, wherein the silver-supplying layer contains a halogen precursor.

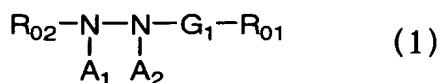
6. The heat-developable image-recording material according to Claim 4, wherein the halogen precursor has been incorporated in the form of microparticles dispersed as a solid in an aqueous medium.

7. The heat-developable image-recording material according to Claim 5, wherein the halogen precursor has been incorporated in the form of microparticles dispersed as a solid in an aqueous medium.

8. The heat-developable image-recording material according to Claim 1, wherein the electron-transfer agent is a compound selected from the group consisting of hydrazine derivatives, alkene derivatives, isooxazole derivatives and acetal compounds.

9. The heat-developable image-recording material according to Claim 2, wherein the electron-transfer agent is a compound selected from the group consisting of hydrazine derivatives, alkene derivatives, isooxazole derivatives and acetal compounds.

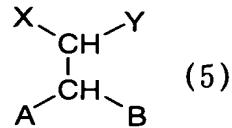
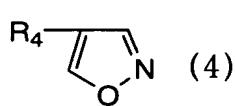
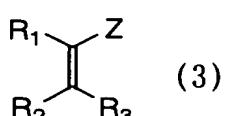
10. The heat-developable image-recording material according to Claim 1, wherein the electron-transfer agent is a hydrazine derivative represented by the general formula below:



wherein  $R_{02}$  denotes an aliphatic group or an aromatic group,  $R_{01}$  denotes hydrogen, alkyl, aryl, an unsaturated heterocyclic group, alkoxy,

aryoxy, amino or hydrazino, G<sub>1</sub> denotes -CO-, -SO<sub>2</sub>-, -SO-, -P(O)-, -R<sub>0</sub><sub>3</sub> P(O)-, -COCO-, thionylcarbonyl or iminomethylene, and A<sub>1</sub> and A<sub>2</sub> independently denote hydrogen, or substituted or unsubstituted alkylsulfonyl and R<sub>0</sub><sub>3</sub> is chosen from the groups defined for R<sub>0</sub><sub>1</sub> and may be the same as or different from R<sub>0</sub><sub>1</sub>.

11. The heat-developable image-recording material according to Claim 2, wherein the electron-transfer agent is a compound selected from the group consisting of substituted alkene derivatives, substituted isoxazole derivatives and acetal compounds represented by the following general formulae (3) to (5)



wherein general formula (3) R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> independently denote hydrogen or a substituent, and Z denotes an electron withdrawing group or a silyl group, in general formula (3), R<sub>1</sub> and Z, R<sub>2</sub> and R<sub>3</sub>, R<sub>1</sub> and R<sub>2</sub>, or R<sub>3</sub> and Z may be bonded together to form a cyclic structure, in general formula (4), R<sub>4</sub> denotes a substituent, in general formula (5), X and Y independently represent hydrogen or a substituent; A and B independently denote alkoxy, alkylthio, alkylamino, aryloxy, arylthio, anilino, heterocyclic oxy, heterocyclic thio or heterocyclic amino, and in general formula (5), X and Y, and A and B may be bonded together to form a cyclic structure.

12. A method for forming an image by heat development comprising:

imagewise exposing a heat-developable image-recording material comprising, on a support,  
a silver-supplying layer containing an organic silver salt, a reducing agent, and an organic binder, and  
a separate photosensitive layer containing a photosensitive silver halide,  
the heat-developable image-recording material further containing an electron-transfer agent; and then  
heat-developing the heat-developable image-recording material;  
whereby development of the photosensitive layer forms a silver image  
in the silver-supplying layer.

13. The method for forming an image by heat development according to Claim 12, wherein the silver-supplying layer contains substantially no photosensitive silver halide.

14. The method for forming an image by heat development according to Claim 12, wherein the silver-supplying layer contains a halogen precursor.

15. The method for forming an image by heat development according to 12, wherein the photosensitive layer contains a reducing agent.

Add A<sup>1</sup>  
Add C<sup>2</sup>